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## 4. Coppin's method:

Make thin smear on glass. Fix by heating.

Stain by covering with Ziehl's carbol-fuchsin, diluted with  $\frac{1}{2}$  its volume of dist. water.

Heat specimen until it steams well, and put aside for 2-5 minutes.

Wash excess of carbol-fuchsin with water.

Place in bath of 10% sulphuric acid until smear fades to an almost invisible gray or pink.

Wash well until it appears merely cloudy when held to light.

Cover smear with 1% solution (aq.) of picric acid for 10-50 seconds. Wash and mount as usual.

This method shows the tubercle bacilli as rose-red beaded rods upon a pale yellow field.

## BACTERIAL INFECTION BY ENDO-PARASITES

A. E. Shipley, in the *Proceedings of the Royal Society*, Victoria, cites a case of the bacterial infection of the swim-bladder of a trout through the migration of a nematode worm from the digestive tract to that point. This, taken with other known similar cases, leads him to suspect that in an analogous way human entozoa, passing from the digestive tract with its numerous microbes, may be the means of infecting distant organs in man, just as really as in the case of the ecto-parasites,—even tho less frequently.

Mehlhose has recently cited numerous cases in which bacteria have been found in the bladder-forms of tapeworms.

## LONGEVITY OF TRICHINA

In an examination, made in Posen, of nearly 100 bodies of persons more than 60 years of age, it was found that almost 20% showed cysted *Trichina*. From facts brought out in connection with the examination, there is strong ground for concluding that *Trichina* may live more than 40 years without losing its power to develop.

## SYMBIOSIS AND PARASITISM

A most interesting quadruple mixture of symbiosis and parasitism is reported by a French observer, in which three species of micro-organisms figure. A ciliate infusorian—*Trichodina paradoxa*

—lives in the intestine of a mollusk, *Cyclostoma elegans*. The surface of the infusorian is covered by an ectoparasitic species of *Spirillum*. In the pharynx of the infusorian is a cluster of bacteria, believed to be living symbiotically with the *Trichodina*. This association is quite constant.

The observations of Bab, Sauvage, and McIntosh seem to show that it is certainly possible for *Spirochaeta pallida* to pass from a syphilitic woman to her children directly thru the ova. McIntosh recently cites cases in which the ovaries and other tissues—even the ova—of a congenitally syphilized child showed great numbers of the organisms.

Schereschewsky has been able to cultivate *Spirochaeta pallida* on horse-serum. These cultivated specimens could not be distinguished from the usual form supposed to be the cause of syphilis, except in that they do not produce the disease in animals. This suggests that they have either undergone an attenuation in culture, or that syphilis is not really caused by *S. pallida*.

Mano Truffi claims to have produced complete immunity of rabbits to syphilis by cutaneous infection.

The list of lactic acid-producing bacilli is reinforced by a new *Streptothrix* isolated by G. C. Chatterje, from "Dadhi"—a sour-milk preparation of India. It coagulates the casein, produces much lactic acid, and rapidly destroys pathogenic bacteria introduced into milk cultures with it.

K. Kominami (Tokyo, 1909) reports finding the sexual phases of *Mucor racemosus*.

Members of this Society who are interested in the protozoa or in Mitosis cannot fail to get great pleasure and profit from an examination of the remarkably perfect slides for sale by Mr. V. S. Powers, Station A, Lincoln, Nebraska. The Secretary is frank to confess that he has seen nothing to compare with them in domestic or imported slides, and recommends that members who work with these subjects individually or with classes send for the list of offerings.